

(b) Within an enclosure, the spacing between energized components (or between an energized component and ground) must be to the appropriate industry standard for the voltage and current utilized in the circuit. Additionally, spacing within any enclosure must be sufficient to facilitate servicing.

[CGD 94-108, 61 FR 28275, June 4, 1996]

§ 111.01-9 Degrees of protection.

(a) Interior electrical equipment exposed to dripping liquids or falling solid particles must be manufactured to at least NEMA 250 Type 2 or IEC IP 22 degree of protection as appropriate for the service intended.

(b) Electrical equipment in locations requiring exceptional degrees of protection as defined in § 110.15-1 of this chapter must be enclosed to meet at least the minimum degrees of protection in ABS Rules for Building and Classing Steel Vessels, table 4/5B.1, or appropriate NEMA 250 Type for the service intended. Each enclosure must be designed in such a way that the total rated temperature of the equipment inside the enclosure is not exceeded.

(c) Central control consoles and similar control enclosures must be manufactured to at least NEMA 250 Type 2 or IEC IP 22 degree of protection regardless of location.

(d) Equipment for interior locations not requiring exceptional degrees of protection must be manufactured to at least NEMA 250 Type 1 with dripshield or IEC IP 11.

NOTE TO § 111.01-9: The degrees of protection specified in this section are described in NEMA Standards Publication No. 250 and IEC IP Code 529 and designated in ABS Rules for Building and Classing Steel Vessels, table 4/5B.1.

[CGD 94-108, 61 FR 28275, June 4, 1996, as amended at 62 FR 23907, May 1, 1997]

§ 111.01-11 Corrosion-resistant parts.

Each enclosure and part of electric equipment that can be damaged by corrosion must be made of corrosion-resistant materials or of materials having a corrosion resistant finish.

§ 111.01-13 Limitations on porcelain use.

Porcelain must not be used for lamp sockets, switches, receptacles, fuse blocks, or other electric equipment where the item is solidly mounted by machine screws or their equivalent, unless the porcelain piece is resiliently mounted.

§ 111.01-15 Temperature ratings.

(a) In this subchapter, an ambient temperature of 40°C is assumed except as otherwise stated.

(b) A 50°C ambient temperature is assumed for all rotating electrical machinery in boiler rooms, engine rooms, auxiliary machinery rooms, and weather decks, unless it can be shown that a 45°C ambient temperature will not be exceeded in these spaces.

(c) A 45°C ambient temperature is assumed for cable and all other non-rotating electrical equipment in boiler rooms, in engine rooms, in auxiliary machinery rooms, and on weather decks. For installations using UL 489 SA marine type circuit breakers the ambient temperature for that component is assumed to be 40°C. For installations using Navy type circuit breakers the ambient temperature for that component is assumed to be 50°C.

(d) Unless otherwise indicated in this subchapter, a 55°C ambient temperature is assumed for all control and instrumentation equipment.

(e) If electrical equipment is utilized in a space in which the equipment's rated ambient temperature is below the assumed ambient temperature of the space, its load must be derated. The assumed ambient temperature of the space plus the equipment's actual temperature rise at its derated load must not exceed the equipment's total rated temperature (equipment's rated ambient temperature plus its rated temperature rise).

[CGD 94-108, 61 FR 28276, June 4, 1996, as amended at 62 FR 23907, May 1, 1997]

§ 111.01-17 Voltage and frequency variations.

Unless otherwise stated, electrical equipment must function at variations of at least ± 5 percent of rated frequency and +6 percent to -10 percent